

SELF IMPLEMENTING ON-SITE CLEANUP AND DISPOSAL PLAN

FORMER SCHMIDT'S BREWERY

Bounded by N. 2nd St., Girard Ave., Hancock St., Wilkey St., Germantown Ave.
City of Philadelphia
Philadelphia County, Pennsylvania

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REPSG Project Reference No. 6651.130.03

PREPARED FOR:

Northern Liberties Development, LP

969 North Second Street
Philadelphia, PA 19123

This plan represents REPSG's knowledge of conditions on the subject site at the time of preparation.

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this Self-Implementing Onsite Cleanup and Disposal Plan (Report) is to provide the United States Environmental Protection Agency (EPA) Region 3 Toxic Substances and Control Act (TSCA) program and stakeholders with the information necessary to review and approve the site remediation activities conducted under TSCA. The application includes information on the source of the contamination, nature and extent of the impacts associated with a PCB release, and plans for removing, disposing and/or capping of the impacted soils located on the Former Schmidt's Brewery Site ("Site").

1.2 BACKGROUND

This Site is bounded by Girard Avenue to the north, Hancock Street to the northeast, Wildey Street to the southeast, Germantown Avenue to the southwest, and North 2nd Street to the west in the Northern Liberties neighborhood of Philadelphia, Pennsylvania and is the location of the former Schmidt's Brewery. The former Schmidt's Brewery was situated on 9.4 acres. NLD acquired the property via Sheriff's sale on February 2, 2000. Prior to NLD's acquisition of the property, transformers associated with the former Schmidt's operations were reportedly removed from the Site. From 2000-2001, NLD undertook remediation and demolition of the vacant and abandoned buildings. The Site is currently vacant and former above grade structures have been demolished.

NLD proposes to redevelop the Site as a mixed commercial and residential complex. The project will be conducted in two phases. Phase I of development will include a commercial complex, to include a 53,190 square foot grocery store, located at the northern section of the Site situated at the intersection of North 2nd Street and Girard Avenue. The introduction of a grocery store to this area of the neighborhood will provide essential services to a neighborhood with significant population growth. Phase II of development will include the approximately 600 residential units, and urban park, and parking facilities, and traffic control measures to facilitate this new vitality, and to help alleviate some of the current traffic control stresses in the neighborhood. These functions are essential to development in Northern Liberties, promoting the initiatives set out by the North Liberties Neighborhood Association (NLNA) in their Northern Liberties Neighborhood Plan, dated November 2005, and the Northern Liberties Waterfront Plan, dated April 2007, which include the "Re-establish[ment of] 2nd Street as the heart of Northern Liberties," "Attract balanced growth with both development and open space," and to add to the public framework of "Green Space, Green Links, and Apertures." A Public Involvement Plan ("PIP") for the project was developed and implemented under the oversight of the Pennsylvania Department of Environmental Protection (PADEP). Highlights of the PIP are presented in the Project Summary Report provided to the EPA on July 29, 2008.

1.3 Report Organization

Organization of this report is as follows:

- **Section 1** provides an introduction to the Site and the scope and objective of this reporting.

- **Section 2** provides Site description and history of ownership and prior environmental investigations
- **Section 3** details the sampling and analysis completed to date under the TSCA program
- **Section 4** provides an assessment of the distribution of identified PCB impacts at the Site
- **Section 5** presents the site investigation data.
- **Section 6** presents the cleanup plan, including excavation plans, engineering control descriptions, and ongoing monitoring.

2.0 SITE DESCRIPTION

2.1 Site Description

Information presented in this section has been developed from a review of prior environmental reporting, visual site reconnaissance, and research of Federal, State and local records.

2.1.1 Site Location

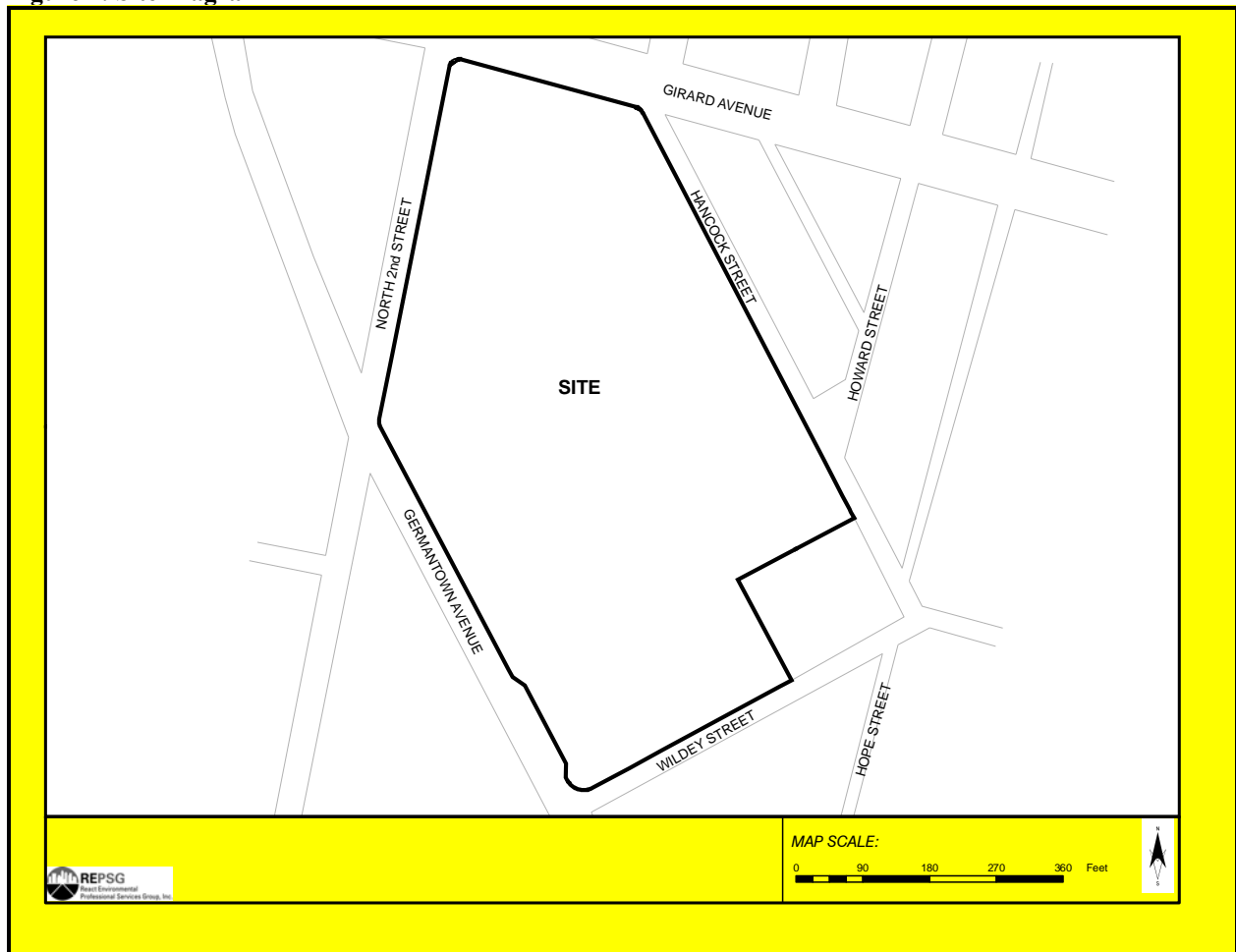
The Site is located at the corner of North 2nd Street and Girard Avenue. It is bounded by Girard Avenue to the north, Hancock Street to the northeast, Wildey Street and former Chenango Street to the southeast, Germantown Avenue to the southwest, and North 2nd Street to the west.

As identified by City of Philadelphia tax mapping, the 9.4-acre Site is comprised of approximately 170 individual tax lots. Geographic coordinates of the Site, referencing the southeast corner of the intersection of North 2nd Street and Girard Avenue, are 242544 N, 2699747 E (NAD 83 Pennsylvania State Plane, South Zone, US Feet) / 39.9693291 N. Latitude, 75.1395516 W. Longitude. Site location is shown on the attached **Topographic Map (Appendix A)**. The Site is divided into two phases of development. Phase I is the northern portion of the Site, it includes low-occupancy developments only and is [REDACTED]-acres; Phase II is the southern portion of the Site, it includes low-occupancy and high-occupancy developments, including residential developments and is [REDACTED]-acres (see **Figure 1**).

2.1.2 Current Site Development and Usage

The Site is currently vacant. All historical on-site structures have been demolished. On-site access is restricted by chain-link fence along the perimeter of the entire Site. The buildings in the vicinity of the Site are comprised of a mixture of residential and commercial/light industrial properties. The area is zoned Area Shopping Center (ASC) as defined in the Philadelphia Zoning Code. Site boundaries and the boundaries between the two phases of development are shown in **Figure 1** (see **Appendix A**).

Figure 1: Site Diagram



2.1.3 Proposed Site Redevelopment and Usage

NLD proposes a mixed commercial/residential use for the Site. The current proposed site redevelopment plan is attached as **Appendix H**. This plan is subject to additional changes through the development approval process, however the plan has been supported by the community and is unlikely to undergo significant change relative to the building footprints and land usage. The current plan includes the following elements, which will be constructed on Phase I and Phase II of the Site:

Phase I

- A commercial building will be constructed along North 2nd Street and along Girard Avenue. This commercial building will include ground floor retail/commercial units, and a single commercial unit, a supermarket, located above these commercial units at the corner of the intersection between North 2nd Street and Girard Avenue.
- The interior portion of Phase I development at the Site will be developed with a parking field.

Phase II

- One 26-story mixed use commercial/residential tower will be constructed at the southwestern portion of the site, located roughly perpendicularly to, and approximately half way along Germantown Avenue. The ground floor of this building will be occupied by two commercial tenants and the lobby entrance for the rest of the building's residential units; the other 25 stories will contain approximately 260 residential units.
- One 16-story residential development, which will contain 229 units, will be constructed in the central portion of the Site, roughly parallel to Germantown Avenue and Hancock Street. This residential development includes residential units on the ground floor, and connects with another mixed use commercial/residential building. The lobby located at the northern portion of the building on the ground floor connects to the lobby of the mixed use commercial/residential building, which has a total of 33 residential units located across the four floors, and a single 2,050 square foot commercial unit, located near the intersection of North 2nd Street and Germantown Avenue; the most western portion of the building.
- One four-story residential development, which will contain approximately 39 units, will be constructed on the eastern portion of the Site, along Hancock Street.
- The southwestern portion of the site has been approved for commercial development; the proposed development at this portion of the site includes a parking garage.
- The interior portions of Phase II development at the Site will be developed with Van Horn Street located between the residential developments and the proposed parking garage present at the southwest portion of the Site, and a landscaped park located in the portion of Phase II situated along Germantown Avenue

2.2 Site Ownership and Operational History

The former Schmidt's Brewery was constructed in the 1890's and operated from the turn of the century to the late 1980s. During its operation, the brewery expanded to occupy the area within Hancock Street, Wilkey Street, Germantown Avenue and North 2nd Street, by constructing several buildings and parking lots over previous residential and commercial properties. Locations of former structures are provided in the Project Summary Report submitted to the EPA on July 29, 2008, and provided in **Appendix A**.

REPSG conducted a search of city records to identify the chain of ownership for the former Schmidt's Brewery. Because the Site as a whole consisted of approximately 170 separate tax parcels, assembling the chain of title for every parcel was considered impractical. The following table, **Table 1**, lists the grantors, grantees and dates of title transfer of some of the former operational portion of the brewery, known as Parcel 8-N-11 Lot 23 with an address of 160-186 Girard Avenue, and consisting of approximately 4.89 acres:

Table 1: Chain of Ownership, Parcel 8-N-11 Lot 23, 160-186 Girard Avenue

Grantor	Grantee	Date
Charles Voss	George Weldmann	8/15/1866
George Weldmann	Frederick Anti	3/26/1879
The Heirs to the Estate of Frederick Anti	Henry C. Schmidt, Edward A. Schmidt, and Frederick Schmidt	3/2/1896
Henry C. Schmidt, Edward A. Schmidt, and Frederick Schmidt	Albert A. Starck	3/19/1896
Albert A. Starck	George A. Webber	12/21/1909
George A. Webber	Katherine Starck	12/21/1909
Albert A. and Catherine Starck	Robert Noble	9/28/1911
Robert Noble	C. Schmidt and Sons, Inc.	9/28/1911
Sheriff's Deed, C. Schmidt and Sons, Inc.	Northern Liberties Development, LP	2/4/2000

The former Schmidt's Brewery has been abandoned since cessation of operations (exact date unknown). NLD acquired the Site through a Sheriff's sale in February 2000. The vacant and abandoned on-site structures were demolished and certain remediation activities were conducted by NLD from 2000-2007.

NLD conducted removal activities of hazardous or potentially-hazardous materials, which are understood to have existed on the Site before NLD's ownership, prior to and during demolition work.¹

Removal of materials, including asbestos, was performed by a third-party contractor under oversight by the City of Philadelphia's Public Health Department's Air Management Services, Asbestos Control Unit. Disposal included four (4) PCB drums and 1 capacitor pack by a hazardous material crew. All of these materials and all other materials that were exported off site were disposed of in accordance with all applicable regulations. Documentation of PCB-related disposal is provided in the Project Summary Report included in **Appendix A**.

¹ ePhase, Inc. Draft Limited Phase I Environmental Site Assessment, Former Schmidt's Brewery, 160-186 Girard Avenue, Philadelphia, PA. August 17, 1999.

2.3 Summary of Prior Investigations

2.3.1 Project Summary Report

A Project Summary Report dated July 29, 2008 was submitted to the EPA. This report provided a summary of the site investigation work relative to PCB impacts at the Site. The Project Summary Report presented the investigation according to Area of Concern (AOC). The AOCs included specific locations where PCB impacts were likely to be present based on former Site use, and a Site-wide investigation to assess the potential for any addition areas with PCB impacted soil. The list of AOCs which were investigated for PCBs is presented in **Table 2**.

Table 2: AOC List

<i>AOC Name</i>	<i>AOC Description</i>
AOC-002	A former transformer room located at the ground floor of former Building #21.
AOC-003	A former transformer room located at the ground floor of former Building #11
AOC-004A	A former sub-surface vault located southwest of former Building #11
AOC-004B	A former sub-surface vault located at the loading dock between former Buildings #24 and #12.
AOC-007	Site-wide soil quality

PCBs were initially evaluated for individual Aroclors in accordance with the PADEP Land Recycling Program regulations. PCB impacts to soil were identified at all five of these AOCs, and required remediation to attain residential SWHS² in accordance with Section 250.703 and 250.707 of the PA Code Chapter 250. These remediation activities included the excavation and disposal of soils and post-excavation sampling to confirm the removal of impacted soils. PCBs were not identified in groundwater.³

3.0 JULY, AUGUST, SEPTEMBER AND OCTOBER 2008 SAMPLING EFFORT

In July, August, September, and October 2008, REPSG performed additional soil and groundwater sampling at the Former Schmidt's Brewery Site. The objective of these investigations was to delineate specific areas of PCB impacted soil, provide additional coverage, and confirm the absence of PCBs in groundwater. The soil investigations had a particular emphasis in identifying areas which exceed the action levels of 1 ppm, 10 ppm, and 100 ppm.

3.1 Geoprobe Drilling Procedure

Geoprobe borings were advanced in at different locations across the Site and were advanced to different depths. All borings were advanced under the oversight of a REPSG geologist. A four foot sleeve length was used by both of the two companies that were employed to advance the borings. These two companies include B.L. Myers Brothers and Co. of Glenmoore, PA and Environmental Probing, Inc. (EPI) of Cream Ridge, NJ. All drillers were licensed in the Commonwealth of Pennsylvania.

² Risk based and human health based derivation of the cleanup standards are provided in **Attachment X**.

³ Both soil and groundwater samples were analyzed for the presence of PCBs by EPA method 8082.

3.1.1 B.L. Myers & Brothers, Co.

On July 24 and 25, 2008, 58 Geoprobe borings (EG-001 through EG-056, EG-064, and EG-074) were advanced at different locations across the Site. Three of these borings (EG-056, EG-064, and EG-074) were advanced down to six (6) feet below grade (fbg) in the same location as previously collected samples. Samples were collected at 2, 4, and 6 fbg. The goal of the samples collected from these borings was to provide vertical delineation of the impacted soils identified by soil samples collected in the previous investigation. The soil samples were collected in 4 oz. glass jars and submitted for PCB analysis by EPA method 8082 at Analytical Laboratory Services, Inc. (ALSI).⁴ The remaining 55 soil borings were advanced in the area of the Former Building 21, the northwestern portion of the Site. These borings were oriented in a 10'x10' grid across the study area, and were advanced to varying depths between 2 and 18 fbg. One soil sample was collected from each boring and analyzed for PCBs by EPA Method 8082 at ALSI. A random number generator was used to determine the depth from which soil samples were collected.

Borings were advanced using a truck mounted Geoprobe drilling rig, which collects soil samples by using direct push technology. A 2" diameter acetate sleeve was inserted into a 4' long stainless steel core. The core was pushed in the ground, and the soil was collected within the acetate sleeve. The sleeves were then retrieved, cut open, logged, and samples were collected.

3.1.2 Environmental Probing, Inc.

On August 12 and 13, 2008, 34 Geoprobe borings (EP-083 through EP-116) were advanced in the northwest portion of the Site around the Former Building 21 location, and beneath the previously uncharacterized soils addressed during the July sampling event. Soil borings were advanced down to various depths between 12 and 25 fbg. One to three samples were collected from each soil boring; these samples were collected at depths between 8.5 and 25 fbg. These samples were collected to delineate, both vertically and horizontally, an area of PCB impacted soils identified by the previous investigation. The soil samples were collected in 4 oz. glass jars and submitted for PCB analysis by EPA method 8082 at Analytical Laboratory Services, Inc. (ALSI).

On October 13 and 14, 2008, 35 Geoprobe borings (INFILL-001 through INFILL-016, EG-037, and EP-135 through EP-154) were advanced at different locations across the Site. Sixteen (16) of these borings (INFILL-001 through INFILL-016) were advanced on October 13, 2008 down to depths of eight (8) feet below grade (fbg). Samples were collected at 2, 4, and 8 fbg.

On October 14, the remaining 21 soil boring were advanced in three areas all located in the northwest portion of the Site, around the Former Building 21 area. These borings were advanced down to depths of 8, 10, and 16fbg; samples were collected at depths ranging from 2 to 16 fbg. The goal of this soil investigation was to provide vertical delineation of the impacted soils identified by soil samples collected

⁴ Analytical Laboratory Services, Inc. located at 34 Dogwood Lane, Middletown, PA, is a NELAP accredited laboratory in Pennsylvania; 22-293.

in the previous investigation. The soil samples were collected in 4 oz. glass jars and submitted for PCB analysis by EPA method 8082 at Analytical Laboratory Services, Inc. (ALSI).

Borings were advanced using a truck mounted Geoprobe drilling rig, which collects soil samples by using direct push technology. A 2" diameter acetate sleeve was inserted into a 4' long stainless steel core. The core was pushed in the ground, and the soil was collected within the acetate sleeve. The sleeves were then retrieved, cut open, logged, and samples were collected.

3.2 Sampling Procedure

Continuous soil cores were obtained from each of the soil borings and were examined by the on-site scientist. REPSG's on-site scientist characterized the soil, noting any evidence of contamination and identifying the depth to groundwater. These notes, along with the depth from which samples were collected were used to create soil boring logs, which are included in **Appendix B**.

Clean, disposable nitrile gloves were worn during all sampling collection activities. Samples were tightly sealed and clearly labeled with the sample identification number, project name, and date and time of sample collection. After a sample was collected, it was placed immediately in an insulated cooler with ice to maintain a temperature of approximately 4 degrees Celsius. Each sample was entered on a chain of custody form that was maintained with the samples and transported to ALSI.

3.3 Investigation Derived Waste

Decontamination activities for the non-disposable equipment, and the disposal of the used Geoprobe sleeves were handled by the drilling company. Residual soils that were removed during the boring activities, and were not collected for analysis, were placed on-Site at the location of the boring from which the soils were removed.

4.0 CONTAMINANT DISTRIBUTION

Analytical data collected from previous investigations was used to create a preliminary conceptual model of the contamination at the Site. Analytical data from previous investigations covers a period of roughly **_____ years, from _____ through _____**, and includes a total of **_____** soil samples. The locations of these soil samples and the analytical results for these samples are included in **Appendix#** in **Appendix#**. After reviewing this data, it became apparent that data gaps existing and the PCB contaminated areas could not be accurately delineated.

Using the existing analytical data, REPSG performed a sampling effort to fill data gaps in order to delineate the vertical and horizontal extent of PCB contamination. These sampling efforts were conducted in July, August, September, and October, 2008, and included a total of **_____** soil samples, which were analyzed for Total PCBs. The locations of these soil samples and the analytical results for these samples are included in **Appendix#** in **Appendix#**.

The distribution of PCB impacts was evaluated using all historical and recently collected analytical data. This data has identified specific areas with PCB impacts above 1 ppm, 10 ppm, and 100 ppm. Most of the PCB impacts are found in the northwest portion of the Site, the areas previously identified as Building 21

and Building 11, which contained PCB transformers, and the two PCB transformer vaults also in this portion of the Site. Other PCB impacts have been identified at the Site; these impacts are found mostly at the surface.

Three ranges of PCB concentrations (less than or equal to 10 ppm, greater than 10 ppm and less than or equal to 100 ppm, and greater than 100 ppm) were identified as the cleanup goals for the Site. The following discussion of contaminant distribution is broken down by depth and concentration ranges.

4.1 PCB Soil Analytical Results (0-2.5 fbg)

4.1.1 PCBs greater than 100ppm

There have been 108 soil samples collected from a depth of 0 to 2.5 fbg which have been analyzed for Total PCBs. Out of these 108 sample, one sample (EP-151) collected at two feet below grade, had a Total PCB concentration above 100 ppm. This soil sample is located in the northwest portion of the Site, in the vicinity of the former Building 21 area, the location of this soil sample is depicted in **Figure #**. This soil sample has been horizontally and vertically delineated by other soil samples with concentrations below 100 ppm.

4.1.2 PCBs greater than 10ppm and less than or equal to 100ppm

There have been 108 soil samples collected from a depth of 0 to 2.5 fbg which have been analyzed for Total PCBs. Out of these 108 sample, 31 samples collected at two feet below grade, have had a Total PCB concentration greater than 10 ppm and less than or equal to 100 ppm. These soil samples are distributed across the Site, but are focused in three general areas. These include the former Building 21 area in the northwest portion of the Site, a small area in the center of the Site, which will be developed with a multi-level parking garage, and along the proposed Van Horn Street, located towards the southeastern portion of the Site; the locations of these soil samples are depicted in **Figure #**. The approximate extents of these soil impacts, which most importantly include the delineation of the soil impacts within low occupancy and within high occupancy areas, have been horizontally and vertically delineated by other soil samples with concentrations below 10 ppm.

4.1.3 PCBs less than or equal to 10ppm

There have been 108 soil samples collected from a depth of 0 to 2.5 fbg which have been analyzed for Total PCBs. Out of these 108 sample, 76 samples collected at two feet below grade, have had a Total PCB concentration equal to or below 10 ppm. Out of these 76 samples with concentrations below 10 ppm, there were 14 samples whose concentrations were below the laboratory minimum detection limit (MDL). These soil samples were located across the extent of the Site; the locations of these soil samples are depicted in **Figure #**.

4.2 PCB Soil Analytical Results (3-7.5 fbg)

4.2.1 PCBs greater than 100ppm

There have been 79 soil samples collected from a depth of 3 to 7.5 fbg which have been analyzed for Total PCBs. Out of these 79 sample, three sample (EG-037, EP-139, and INFILL-004) collected at six,

six, and four feet below grade, respectively had Total PCB concentration above 100 ppm. These soil samples are located in the northwest portion of the Site, in the vicinity of the former Building 21 and Building 11 areas. The location of these soil samples are depicted in [Figure #](#). These soil samples have been horizontally and vertically delineated by other soil samples with concentrations below 100 ppm.

4.2.2 PCBs greater than 10ppm and less than or equal to 100ppm

There have been 79 soil samples collected from a depth of 3 to 7.5 fbg which have been analyzed for Total PCBs. Out of these 79 sample, 25 samples collected, have had Total PCB concentration greater than 10 ppm and less than or equal to 100 ppm. These soil samples are located in two areas, the former Building 21 area in the northwest portion of the Site, and in the former excavated soil area in the southern portion of the Site; the locations of these soil samples are depicted in [Figure #](#). The approximate extents of these soil impacts, which most importantly include the delineation of the soil impacts within low occupancy and within high occupancy areas, have been horizontally and vertically delineated by other soil samples with concentrations below 10 ppm.

4.2.3 PCBs less than or equal to 10ppm

There have been 79 soil samples collected from a depth of 3 to 7.5 fbg which have been analyzed for Total PCBs. Out of these 79 sample, 51 samples, have had a Total PCB concentration equal to or below 10 ppm. Out of these 51 samples with concentrations below 10 ppm, there were 11 samples whose concentrations were below the laboratory minimum detection limit (MDL). These soil samples were located across the extent of the Site; the locations of these soil samples are depicted in [Figure #](#).

4.3 PCB Soil Analytical Results (8-12.5 fbg)

4.3.1 PCBs greater than 100ppm

There have been 119 soil samples collected from a depth of 8 to 12.5 fbg which have been analyzed for Total PCBs. Out of these 119 sample, one sample (AOC2-PE-058) collected at twelve feet below grade had a Total PCB concentration above 100 ppm. This soil sample is located in the northwest portion of the Site, in the vicinity of the former Building 21 area. The location of this soil sample is depicted in [Figure #](#). This soil sample has been horizontally and vertically delineated by other soil samples with concentrations below 100 ppm.

4.3.2 PCBs greater than 10ppm and less than or equal to 100ppm

There have been 119 soil samples collected from a depth of 8 to 12.5 fbg which have been analyzed for Total PCBs. Out of these 119 sample, 22 samples collected, have had Total PCB concentration greater than 10 ppm and less than or equal to 100 ppm. These soil samples are located in two areas, the former Building 21 area in the northwest portion of the Site, and in the former excavated soil area in the southwestern portion of the Site; the locations of these soil samples are depicted in [Figure #](#). The approximate extents of these soil impacts, which most importantly include the delineation of the soil impacts within low occupancy and within high occupancy areas, have been horizontally and vertically delineated by other soil samples with concentrations below 10 ppm.

4.3.3 PCBs less than or equal to 10ppm

There have been 119 soil samples collected from a depth of 8 to 12.5 fbg which have been analyzed for Total PCBs. Out of these 119 sample, 96 samples, have had a Total PCB concentration equal to or below 10 ppm. Out of these 96 samples with concentrations below 10 ppm, there were 36 samples whose concentrations were below the laboratory minimum detection limit (MDL). These soil samples were located across the extent of the Site; the locations of these soil samples are depicted in **Figure #**.

4.4 PCB Soil Analytical Results (13-17.5 fbg)

4.4.1 PCBs greater than 100ppm

There have been 58 soil samples collected from a depth of 13 to 17.5 fbg which have been analyzed for Total PCBs. Out of these 58 samples, two samples (EG-039 and EG-050) collected at 16 and 17 feet below grade, respectively had Total PCB concentration above 100 ppm. These soil samples are located in the northwest portion of the Site, in the vicinity of the former Building 21 area. The locations of these soil samples are depicted in **Figure #**. These soil samples have been horizontally and vertically delineated by other soil samples with concentrations below 100 ppm.

4.4.2 PCBs greater than 10ppm and less than or equal to 100ppm

There have been 58 soil samples collected from a depth of 13 to 17.5 fbg which have been analyzed for Total PCBs. Out of these 58 sample, four samples collected, have had Total PCB concentration greater than 10 ppm and less than or equal to 100 ppm. These soil samples are located in two areas, the former Building 21 and the Building 11 area in the northwest portion of the Site; the locations of these soil samples are depicted in **Figure #**. The approximate extents of these soil impacts, which most importantly include the delineation of the soil impacts within low occupancy and within high occupancy areas, have been horizontally and vertically delineated by other soil samples with concentrations below 10 ppm.

4.4.3 PCBs less than or equal to 10ppm

There have been 58 soil samples collected from a depth of 13 to 17.5 fbg which have been analyzed for Total PCBs. Out of these 58 sample, 52 samples, have had a Total PCB concentration equal to or below 10 ppm. Out of these 52 samples with concentrations below 10 ppm, there were 31 samples whose concentrations were below the laboratory minimum detection limit (MDL). These soil samples were located across the extent of the Site; the locations of these soil samples are depicted in **Figure #**.

4.5 PCB Soil Analytical Results (18+ fbg)

4.5.1 PCBs greater than 100ppm

There have been 53 soil samples collected from a depth equal to or greater than 18 fbg which have been analyzed for Total PCBs. Out of these 53 samples, two samples (AOC2-PE-021 and AOC2-PE-051) collected at 19 and 22 feet below grade, respectively had Total PCB concentration above 100 ppm. These soil samples are located in the northwest portion of the Site, in the vicinity of the former Building 21 area. The locations of these soil samples are depicted in **Figure #**. These soil samples have been horizontally and vertically delineated by other soil samples with concentrations below 100 ppm.

4.5.2 PCBs greater than 10ppm and less than or equal to 100ppm

There have been 53 soil samples collected from a depth equal to or greater than 18 fbg which have been analyzed for Total PCBs. Out of these 53 sample, six samples collected, have had Total PCB concentration greater than 10 ppm and less than or equal to 100 ppm. These soil samples are located in, the former Building 21 area in the northwest portion of the Site; the locations of these soil samples are depicted in **Figure #**. The approximate extents of these soil impacts, which most importantly include the delineation of the soil impacts within low occupancy and within high occupancy areas, have been horizontally and vertically delineated by other soil samples with concentrations below 10 ppm.

4.5.3 PCBs less than or equal to 10ppm

There have been 53 soil samples collected from a depth equal to or greater than 18 fbg which have been analyzed for Total PCBs. Out of these 53 samples, 45 samples, have had a Total PCB concentration equal to or below 10 ppm. Out of these 45 samples with concentrations below 10 ppm, there were 29 samples whose concentrations were below the laboratory minimum detection limit (MDL). These soil samples were located across the extent of the Site; the locations of these soil samples are depicted in **Figure #**.

4.6 Groundwater

4.6.1 Well Installation

4.6.2 Groundwater Elevation

4.6.3 Groundwater Sampling Results

5.0 CLEANUP PLAN AND APPROACH

5.1 Cleanup Goals

Based on discussions with the USEPA Toxics Program and Enforcement Branch, the following PCB cleanup goals are proposed for the Former Schmidt's Brewery Site.

PCB Concentration	Remedial Action
Debris with Total PCB concentrations greater than or equal to 50 ppm	Debris with Total PCB concentrations greater than or equal to 50 ppm will be excavated, loaded onto trucks and sent to Wayne Disposal facility in Belleville, MI.
Debris with Total PCB concentrations less than 50 ppm	Debris with Total PCB concentrations less than 50 ppm will be excavated, loaded onto trucks and disposed in accordance with 40 CFR 761.61(a)(5)(v)(A)
Total PCBs in Soil >100 ppm	Excavated and dispose off-Site at the Wayne Disposal facility in Belleville, MI.
Total PCBs in Soil >10 ppm and ≤100 ppm	Excavated, and consolidate soil under future parking lot located on Site (this is considered to be a low occupancy area, and will be capped).
Total PCBs in Soil >1 ppm and ≤10 ppm	Can remain in future high occupancy areas and will be capped. Can remain in future low occupancy areas with no additional action.

PCB soils and other material with concentrations equal to or greater than 50 ppm will be disposed off-Site at the Wayne Disposal, Inc. in Belleville, MI. The facility is a TSCA permitted chemical waste landfill approved by the EPA and the State of Michigan for PCB disposal. The disposal technology used is landfilling within the chemical waste landfill.

After the removal of the soil containing PCBs above 100 ppm, consolidation of the remaining soils with PCBs greater than 10ppm but less than or equal to 100 ppm is proposed. It is REPSG belief that the consolidation approach is more protective of human health and the environment than capping the PCB impacted soil in place because it reduces the required size of the TSCA cap, which means that there is less cap material to be maintained, and there are fewer utility corridors running through the area of soils requiring a TSCA soil cap.

5.2 Cleanup Approach

5.2.1 Subsurface Debris

In areas where PCB impacted soils are disposed of off-Site (greater than 100 ppm), subsurface debris will be disposed of with the soil. In areas where PCB impacted soil are consolidated on-Site (PCBs greater than 10 ppm and less than or equal to 100 ppm), debris excavated with the soil will be segregated from the soil using an air bucket or similar device. Only the larger debris will be removed (typically 3-inch diameter or greater) and will most likely consist of brick, concrete, wood and metal. The debris will be stockpiled on-Site on a plastic liner to prevent containing the soils beneath. Any debris that visibly appears to be contaminated with oily material that comes from a location with visible oil contamination on the adjacent soil, or has elevated PID readings, will be stockpiled separately (as described above) and sampled to determine the PCB concentration. Metal will be segregated and wipe sampled (as per 761 Subpart P). Concrete, brick and will be sampled using the EPA Region 3 Protocol for concrete. Samples will be collected from the most contaminated material base on visual evidence of contamination, with at least one sample per matrix per 50 cubic yards of material. The debris will be disposed of based on the PCB results.

The debris that does not have an visual or PID evidence of contamination will be stockpiled and sampled for PCBs by wipe sampling segregated metals (as per 761 Subpart P) and sampling brick, concrete and wood using the EPA Region 3 protocol for concrete. Sampling frequency for this stockpiled material will be on sample per matrix per 150 cubic yards.

Debris determined to contain PCBs at greater than or equal to 50 ppm will be disposed of at the Wayne Disposal facility in Bellville, MI. Debris determined to contain PCBs at less that 50 ppm will be disposed of as required by 40 CFR 761.61(a)(5)(v).

5.2.2 Dewatering of Excavations

Water removed from any excavation will be handled and disposed of in accordance with 761.61(b)(1) and 761.61(a)(5)(i)(B)(1). Water will be discharged to the sanitary sewer (which discharges to a publicly owned treatment works) following treatment. Treatment will consist at a minimum of a sedimentation

tank, bag filter, and carbon. Effluent samples will be collected to ensure the effluent does not exceed the discharge limit of 3 ug/L specified in 761.79(b)(1)(ii). All discharge of water will also be in accordance with the waste water treatment permit obtained from the City of Philadelphia for the Former Schmidt's Brewery site. Carbon used for water treatment will not be regenerated by will be analyzed for PCBs and disposed of based on the PCB concentration.

5.2.3 Health and Safety

5.3 Excavation for Off-Site Disposal (PCBs > 100ppm)

5.4 Excavation for On-Site Consolidation (100ppm ≥ PCBs > 10ppm)

5.5 Confirmation Sampling

5.5.1 Contingency Plan for Confirmatory Sampling

5.6 Backfilling

5.7 Cap Design

5.7.1 Low Occupancy Areas

5.7.2 High Occupancy Areas

5.8 Recordkeeping Requirements

5.9 Groundwater Monitoring Plan

6.0 SCHEDULE

7.0 CERTIFICATION